The Beagle, Records of the Museums and Art Galleries of the Northern Territory, 1998 **14**: 123-147

THE *PELÉDANG*. THE LASHED-LUG WHALING CRAFT OF LAMALERA, LOMBLEN (LEMBATA), NUSA TENGGARA TIMUR, INDONESIA

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ABSTRACT

The men of the village of Lamalera, situated at the mouth of Lebala (Labala) bay on the south coast of the island of Lomblen (Lembata), must be among the last of the traditional maritime big game hunters. Conservative in their technology, they go to sea in hand built lashed-lug watercraft, propelled by paddles and woven palm-leaf sails to take giant manta ray, ocean sun-fish, leatherback turtle, shark, dolphin and other small toothed whales, and sperm whale, with hand forged harpoons and lines of cotton or lontar palm and hibiscus fibre. Their catch is either consumed locally or exchanged at adjacent markets for goods they cannot produce themselves, particularly cotton, tobacco, maize, cassava, fruit and other vegetables. A description of their lashed-lug boat, the *pelédang*, and associated technology is provided, along with other brief notes on the division of game.

KEYWORDS: Lashed-lug watercraft, maritime hunting, Lamalera, Indonesia, *pelédang*, whaling

INTRODUCTION

The villagers of Lamalera (Lamalerap), on Lebala bay, south coast of the island of Lomblen, Indonesia (Figs 1–2) are believed to have followed a maritime economy based on the hunting of large sea creatures including sperm whales for well over two hundred years (Barnes 1980: 6). The hunters of Lamalera pursue their prey in large lash-lugged boats known as *pelédang* (sometimes written *pledang* or *pelendang*) or *téna*. Apart from the work of R.H. Barnes and a major study of Lamaleran *ikat* fabrics by Ruth Barnes (1989), documentation of the people and economy of the people of Lamalera has generally been limited to articles in popular magazines promoting tourism (eg. Fuchs 1984: 22–27; Masyhur 1987: 32–39; Moore 1995: 100–112). Barnes presents, in a series of papers, a history of Lamalera, its economy and technology (Barnes 1974: 137–159; 1980: 1–82; 1984: 1–32; 1985: 345–366). This work was brought together and extended in a most comprehensive and detailed study in *Sea Hunters of Indonesia* (Barnes 1996). Barnes (1984) provides a description of the impact of introduced modern technology, in the form of a motorised whale chaser, on the community of Lamalera. This work should be mandatory reading for any individual or organisation involved with the introduction of technological change in traditional societies. Horridge (1982: 49–55) deals with some aspects of the construction of the Lamalera craft in his seminal work on the lash-lugged boats of Eastern Indonesia and the Philippines.

Our own interest is two-fold. Dwyer has maintained a long-term interest in the watercraft of the Indonesian Archipelago; while Akerman, having concentrated on the material culture of Australian Aboriginal people, was interested in observing that of a maritime hunting people. Our specific interest in the unique situation that existed at Lamalera was further whetted on viewing the televised documentary *Whale hunters of Lamalera* (Granada Television 1988), a production for which Barnes had served as anthropologist. It was clear, on viewing this footage, that the people of Lamalera retained a far more traditional approach to both their watercraft technology and their economy than that other notable group of maritime

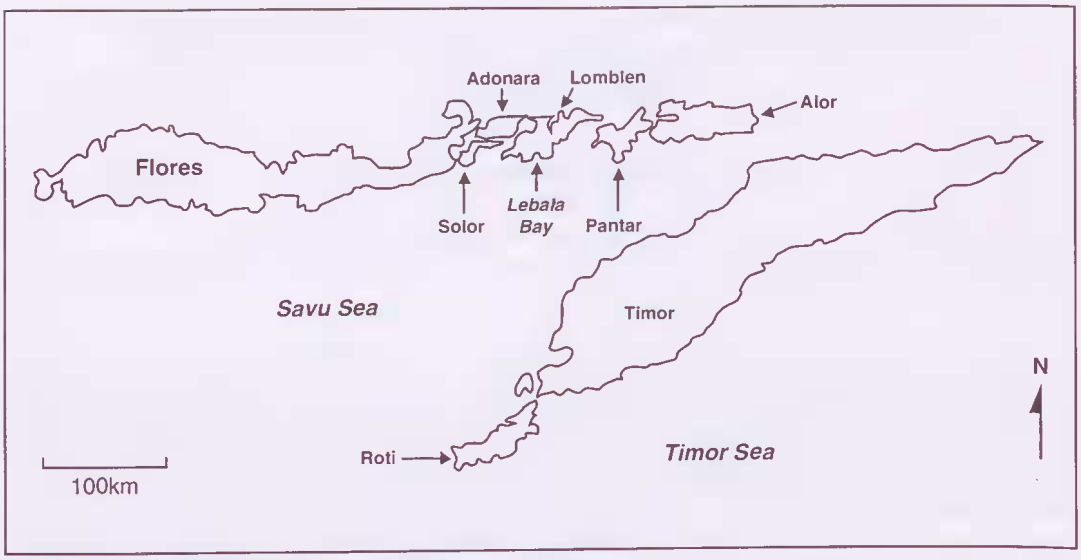


Fig. 1. Savu Sea showing the position of the island of Lomblen.

hunters, the Inuit of the northern polar regions.

In August 1993 we travelled to Lamalera carrying letters from a colleague at the Museum and Art Gallery of the Northern Territory to Josephus Bataona, head of the Bataona clan. Josephus not only offered us a place to stay within his household, but also arranged for us to sail with the crew of the *Holo Sapang* and inventory and take the lines and other details of the vessel *Sili Téna*. The latter boat had been extensively rebuilt prior to our visit and lay outfitted, but temporarily crewless, in its boatshed or *naje*. It was not our intention to carry out formal fieldwork at Lamalera and the following notes are derived from our diaries.

As Barnes's writings provide detailed descriptions of much of the boat and hunting technology from an ethnographic perspective, our aim here is to present the lines of a *pelédang* and provide technical data about the craft and the manner in which they are operated. Illustrations provided by Barnes are very schematic and it was our intention to recast the technical details of the *pelédang* with attention to the relevant proportions. It was also clear after sailing in the *Holo Sapang*, that comments made by Horridge (1982), particularly in relation to the effectiveness of the rigging and sailing capabilities of the *pelédang*, were inadequate. We also noted details of butchering patterns of a number of species of marine animals (Appendix 1). Although we did not see a whale taken and butchered, details of the division of a whale were provided by Josephus Bataona. A sketch map of the beach showing landing points and the disposition of the boatsheds and an inventory of the craft was also made. Each evening we spent time going over the day's work with Josephus, who would correct and guide our investigations. All conversations were conducted in Bahasa Indonesia, which Dwyer spoke with proficiency, rather than in the indigenous Lamaholot spoken by Lamalerans.

Neither of us possess the ear of a trained linguist so we have recorded and transcribed Lamaleran terms as we believe we heard them. Apart from two diacritical (é, ã), we have adopted standard Indonesian orthography in the transcription of words. It must be pointed out that a final 'ng' sound on a word, occurring after the vowel 'a', seems to be an unvoiced alveopalatal nasal rather than the voiced alveopalatal nasal that occurs, for instance, in the English pronunciation of the word - rang, that is 'ang' presents, in Lamaleran, as a much softer, almost silent sound. Where we believe it occurs in a word we show it thus: ã.

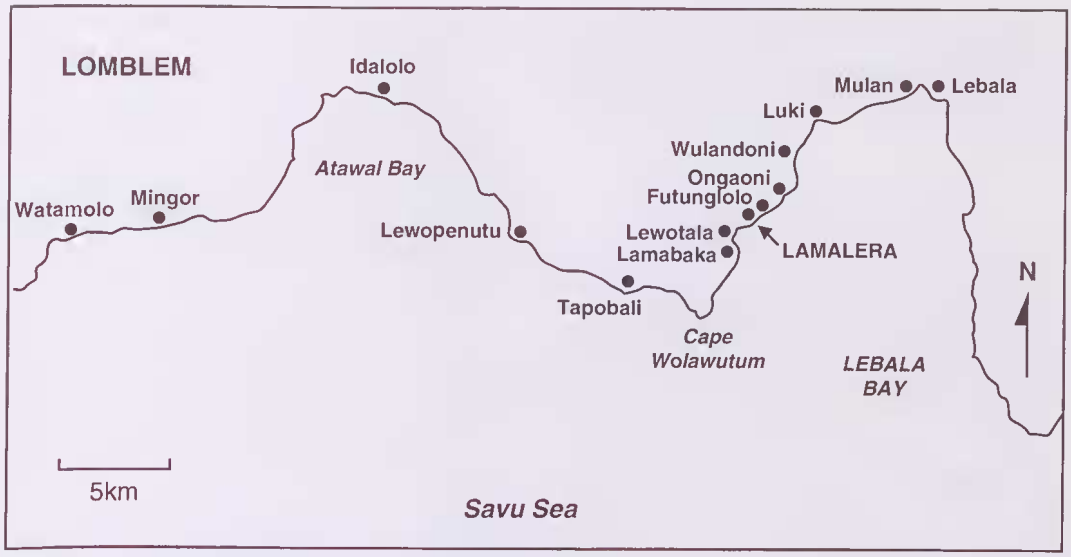


Fig. 2. Lebala Bay, Lomblen, showing Lamalera and adjacent population centers. Taken from a tourist map produced at Lewoleba, Lomblen.

GENERAL DISCUSSION

Generally, the lashed-lug plank boats of southeast Asia are watercraft built of edge-dowelled planks that have projecting cleats or lugs on them that are pierced to take lashings that bind them to thwarts and ribs. Manguin (1985: 334–335) intimates that lashed-lug craft were preceded by and developed from sewn-plank vessels. Manguin presents the 3rd Century AD Pontian wreck from the east coast of the Malay Peninsula as an example of the transition between sewn-plank and lash-lugged craft. The Pontian boat possesses edge-dowelled planks and lugs pierced for lashings in addition to aligned holes in adjacent planks that indicate they were also sewn together. Lashed-lug boats from Europe, including those from the early Viking period, were clinker built, with overlapping planking rather than edge-fitted with each plank flush with the next. Horridge (1982: 1) believed that watercraft built on lashed-lug principles had been employed for at least a thousand years in the Indo-Pacific region. Recent archaeological evidence provides even greater antiquity with the recovery of lashed-lug boats dated between AD 320 and AD 1250 from excavations conducted along the Masao River on Mindanao (Abinion 1989: 1–2; Clark *et al.* 1993: 143–159; Green *et al.* 1995: 177–188; N. Burningham, written comm.).

The hull construction of lashed-lug plank boats has been broken into the following components by Horridge (1982: 1) :

a) the shell-first construction on a keel or dug-out foundation;
b) edge-dowelled planking of hardwood carved to shape;
c) lugs carved *in situ* in transverse rows across the inside of the boat;
d) flexible frames placed in tension to compress the planks together;
e) many transverse thwarts also lashed down to the lugs and rib-ends to squeeze the hull.

While we have no general problem with these conditions we believe that Horridge may be overly precise on some points. For example, we found that the ribs, far from being flexible, were in fact quite solid. This point is also made quite explicitly by Barnes (1985: 359). It was the flexible dowelled planking that was pulled to the ribs as they were being lashed into place. The result is not a rigid pre-stressed structure as implied by Horridge (1982: 59), but a flexible pre-

stressed structure. Rather than focussing on other aspects of Lamaleran boat construction *vis a vis* Horridge's work, we provide details of what we observed in our brief visit to the village.

THE HULL OF THE *PELÉDANG*

For many highly important anthropological details on the actual method of construction of the pelédang, and the social significance both of its parts and as a whole, the reader is urged to read Barnes's publications of 1974 and 1985.

We commenced our study of the *pelédang* by lifting the lines following directions provided by Leather (1989: 29–33). Measurements were made in imperial units which were then converted to metric. The Sili Téna was worked on where it lay in its shed and we were unable to ensure that it was completely level. Some fairing was made when drawing up the lines to compensate for errors of measurement that may have occurred (Fig. 3). Scope remains for more accurate drawings to be made in the future. Having said that, the lines produced, we believe, reflect accurately the shape of the hull and show a very different watercraft than might be envisaged from the schematic drawings provided by Barnes (1985: 348–350). With a length-to-beam ratio of 5:1 and simple doubled ended shape, the craft conforms to the general shape of whale boats that have been developed in other parts of the world (Chapelle 1951: 41–42; Whipple 1979: 94).

Pelédang must be as light as possible yet robust. Each day they are manhandled from the boat sheds to the sea and back. They must be capable of being paddled in pursuit of their quarry and strong enough to withstand the buffeting of flailing tails and powerful manta ray wings. As well as ensuring speed when in pursuit of game, the slim lines and the length at waterline give the boat sufficient hull speed to minimise the likelihood of sinking by the stern when towed by a harpooned whale.

The keel (*iye*) and the planks making up the five lower strakes (*arã*) all have a series of aligned carved lugs (*arã kelik*) projecting from their inner surfaces that are pierced to take lashings. Lugs are sited on the planks where ribs are intended to be fitted. There appear to be similarities between the triangular sectioned lugs on strake 5 of the *pelédang* (which support and are pegged to the lower thwarts) and the description of the lugs found on the eighth plank, the presumed sheer strake of the Butuan 5 boat (Clark *et al.* 1993: 152). A single lug is also situated at the ends of the terminal planks that make up the sheer strakes, strakes 5 and strakes 3. Lashings are passed through these lugs binding port and starboard strakes together reinforcing the junction at both stem and sternpost. *Pelédang* planks are edge-joined with wooden dowels and end to end with interlocking, stepped tongue and groove scarfs (Fig. 4). The ribs (*nulu*) are fitted over the lugs and are lashed to them with strips of *kilepa*. While most lashing was done with *kilepa*, strips of the tough skin taken from the fronds of the lontar palm, bindings of rattan were also seen. Some synthetic cordage was noted, but usually only when a makeshift repair had been effected.

Inner thwarts (*tekan*) are fitted over the lugs of the fifth strake and dowelled to them as well as being lashed to the ribs. The sheer strake (*nefi*), comprising a wide and almost full length plank and short bow and stern planks, is edge-dowelled to the fifth strake but bears no lugs on its inner surface, except at each end, and is therefore not lashed directly to the ribs. It is held down by the upper thwarts (Fig. 5). The sheer strake is not lashed to the upper thwarts as Horridge (1982: 16, fig. 9) indicates. The lashings depicted by Horridge that apparently fix thwarts to the sheer strake are, in fact, those that hold the structural supports known as *kogu* on which are attached the rattan thole bindings used with the rear oars. Horridge also unfortunately, and somewhat ambiguously, intimates in his caption to this figure that it represents a stern to stem view of the craft. The view is, however, from the bow looking aft, the lower thwarts always being situated in front of associated ribs and main thwarts.

Horridge (1982: 12) states that lashed-lug boats cannot be caulked. This is contrary to Barnes (1985: 357) who clearly states that

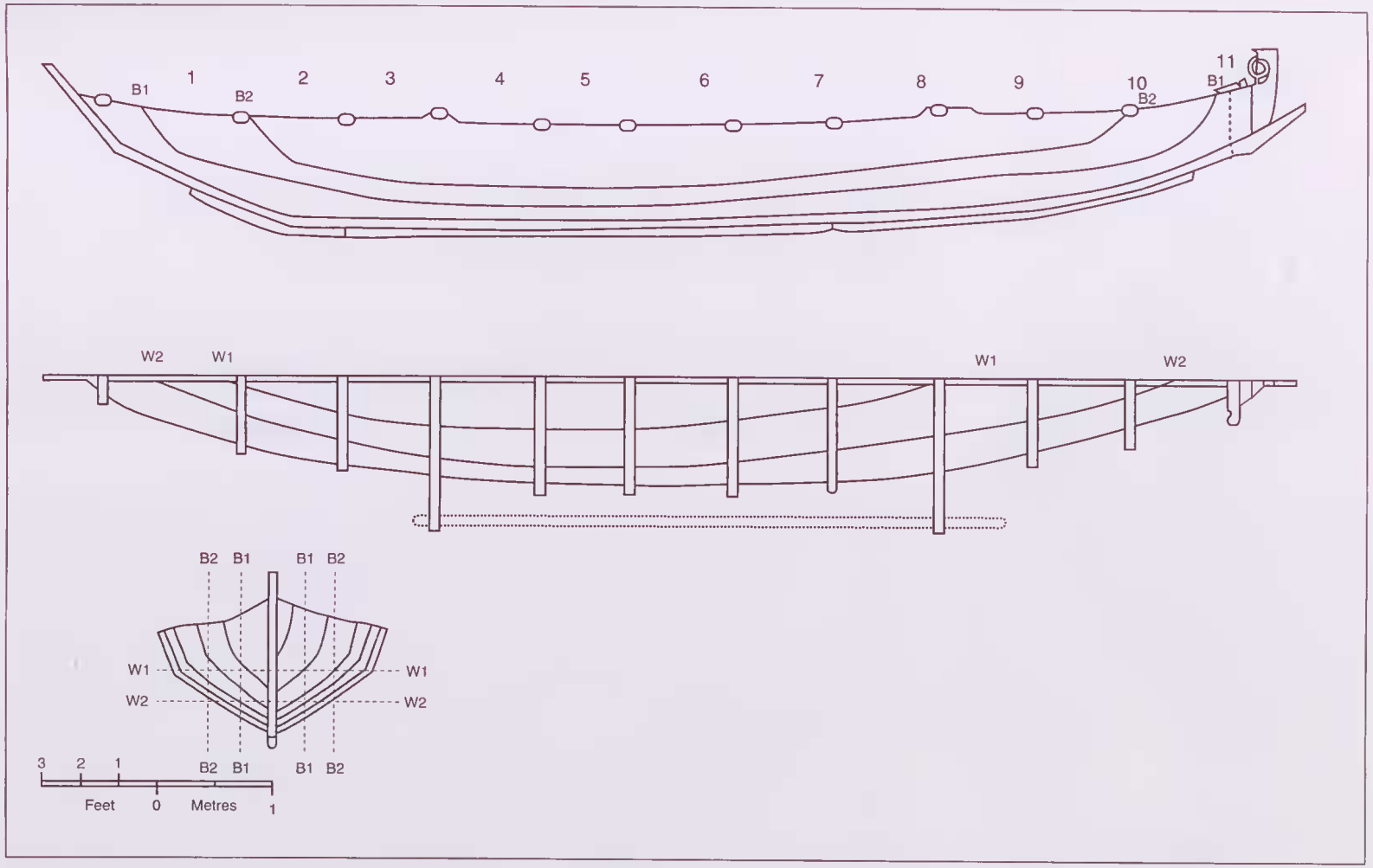


Fig. 3. Line drawing of the Lamaleran *pelédang*. The rope vice (*sinabi*) reinforcing the strake/sternpost union is indicated below station 11.

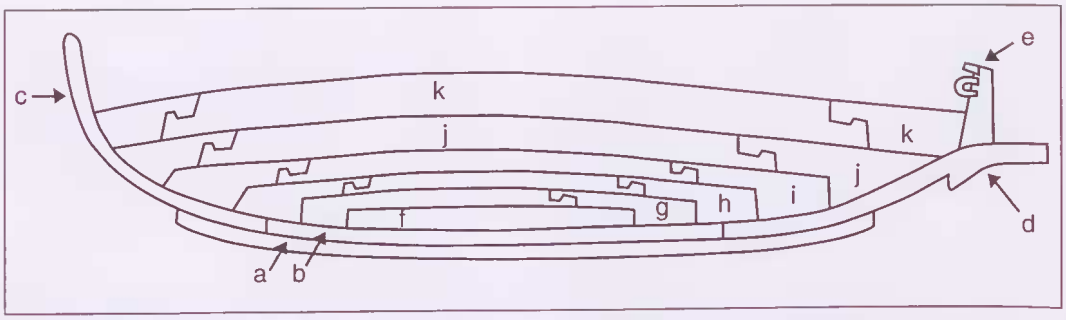


Fig. 4. Schematic representation of *pelédang* planking taken from a model of the *Téna Puka* made by Ignatius Bladan. **a**, false keel (*iye mayi*); **b**, keel (*iye*); **c**, - stem (*menula*); **d**, stern (*kolé*); **e**, sternpost (*madi*); **f**, strake 1 (*arã bilikang*); **g**, strake 2 (*arã kinati*); **h**, strake 3 (*arã tuka*); **i**, strake 4 (*arã nulu futu*); **j**, strake 5 (*arã bela*); **k**, sheer strake (*nefi*). Note scarfing pattern and the spur on the *kolé* which prevents the rope lashing or *sinabi* from being dislodged.

caulking, or more correctly, luting (Burningham 1989: 197), was applied during construction of the hull. Horridge (1986: 45) also states that leaking lashed-lug boats cannot be caulked. During our stay at Lamalera we regularly saw crew caulking leaking boats. Using a pointed, spatulate hardwood tool (*nilit*), a finely pounded bark fibre called *tabima* was driven into any openings visible along the plank seams.

Between the stem and stern there are placed either ten or eleven upper thwarts.The upper thwarts are notched over, and let into the sheer strake, creating a half-lapped junction. The first thwart from the stem is the *belina*. On some craft, thwart 1 rests on a short lugged plank insert (*nelu*), added to the fore end of each sheer strake. This is said to be a recent innovation. Thwart 1 and the following two thwarts support the four large bamboo poles that are lashed, two on each side of the stem, to make up the frame of the harpooner's platform (*hama*). The proximal ends of the bamboo are slotted into thwart 4. Thwarts 4 and 9 extend some 80 cm beyond the sheer strakes and also serve as outrigger booms. They are called the *gilefé fã* and the *gilefé nring* respectively. It should be noted that the outriggers (*elé*) do not, as Horridge suggests (1982: 51) function as floats, but are said to protect the hull from damage when handling whales and large manta rays. They also serve as pivoting points or fulcrum when bringing aboard large game and when assisting to right other craft that have capsized or swamped (Barnes 1980: 49; Gernot Lorber, pers. comm. 1993).

The sternmost thwart, *sepe*, serves as both a seat for the helmsman (*lama nri*) and as a fulcrum for the steering paddle (*fai nring*). The leading edge may be straight or have a semicircular concavity carved in at each end where it projects beyond the hull. These serve to hold the steering paddle in place. As well as being lashed internally, both to the hull and the sternpost (*madi*), the thwart is pierced on each side, just outboard of the hull. A strong lontar fibre rope is passed through one hole, run around the hull to sit in a notch on the sternpiece (*kolé*), up to the sepe and pulled tight and tied off at the other hole. Alternatively, the rope may be passed through a hole bored through the *kolé* rather than embracing it. One craft we saw used both methods. This external rope vice assists in keeping the stern planks from springing from the sternpost (*madi*) and is known as the *senabi* (Fig. 3). *Pelédang* show the vertical expansion and notch on the *kolé* when the *sinabi* is passed around it, but the feature is abandoned when the *sinabi* is passed through it. This suggests that piercing the *kolé* is a more recent innovation. This expanded lower margin of the stern piece and notch seem to be represented on depictions of Dong Son boats on bronze drums (Higham 1989: 201, fig. 4.8), suggesting that the practice of using a rope vice to keep strakes to stern post is of some antiquity. Models of *pelédang* that we purchased had the cord representing the *sinabi* going around the *kolé* and sitting immediately in front of a pronounced vertical expansion of that section (Fig. 4).

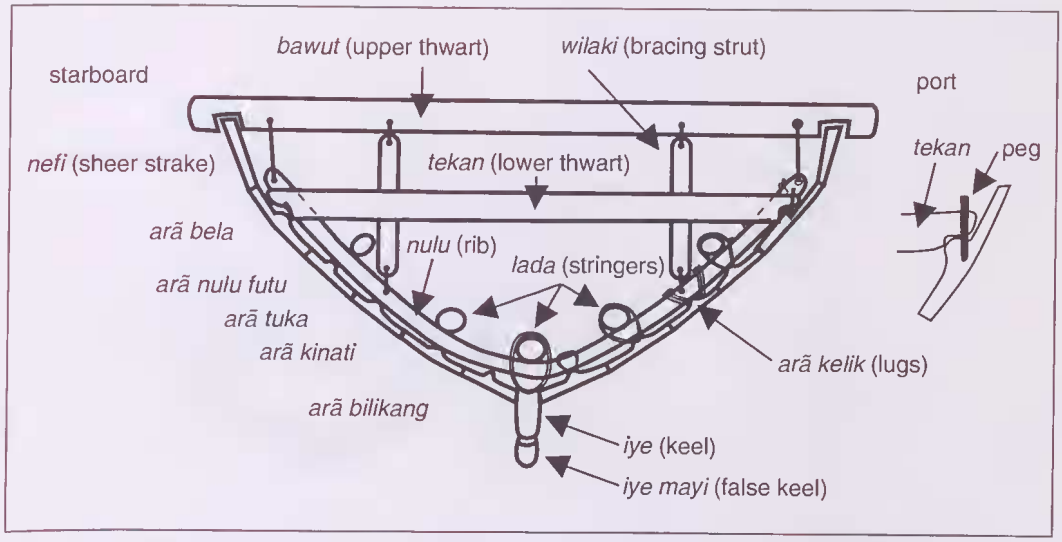


Fig. 5. Cross-section of *pelédang* showing structural features and plank nomenclature. Lashings are not shown for the starboard side. Bow to stern view at thwart 5 (*bawut puwã pukã*).

On several *pelédang* it appeared that the stern had been damaged at some stage and rather than a carefully carved and fitted *sepe* being present, a hastily cut section of tree branch had been pressed into temporary service ensuring that the *sinabi* remained effective. Horridge (1982: 16, fig. 9) illustrates such a temporary *sepe*, situated immediately in front of the projecting sternpost, in his illustration of the details of the lower hull construction of a *pelédang*. It is possible that the projection on the under side of the keel-plank of the 12th century Butuan Two boat, referred to by Clark *et al.* (1993: 158, fig. 14), indicates that a *sinabi*-type lashing was a structural feature used in the construction of ancient lashed-lugged boats. On contemporary *pelédang*, the stem ends of the sheer strakes are lashed together, the lashing being passed through a single lug on each plank. This lashing is then frapped to pull the planks tightly together. A lashing then connects the stem to the forward sheer strake lashing and is also frapped. In this way the stem is fixed to the sheer strakes and the bows firmly closed.

All upper thwarts project 15–30 cm beyond the sheer strakes and along with the outriggers provide purchase points for boat handlers when moving the craft to and from the boat sheds. These thwarts are lashed down to the top of the ribs through holes drilled in both the thwarts and ribs. Upper thwarts 4, 5, 7 and 9 are also connected to the corresponding rib and the lug on the fourth strake by wooden battens (*wilaki*) cut to length and pierced at either end for lashing. These wooden battens seem to be safety devices, as they are only loosely attached to the thwarts and ribs and would only come under load if other lashings failed (Fig. 6). They may possibly provide real structural support if the craft is under tow, as when fast to a whale.

The thwarts divide the inner hull into a series of named compartments (types of *uak*). Compartments are named for either hull features that lie within them, after specific gear that are traditionally placed within them or for the activity that occurs at that position. Thwarts, other than those already named, take their names from the compartment immediately behind them (Fig. 7). *Pelédang* may have, depending on whether there are one or two ribs set astern of the rear outrigger boom, either 10 or 11 compartments. When there are 10 compartments, No. 9 is termed the *smugur*: when the boat has 11 compartments, No. 9 is termed the *smugur bela* and 10 the *smugur kéni*. The last section (*uak lama uri tobo*) is where the helmsman is seated. According to Barnes (1980: 20; 1985: 347), boats with 11 compartments were said to be called *téna* while those with only 10 were classed as *sapang*. As Barnes points out (1985: 347),

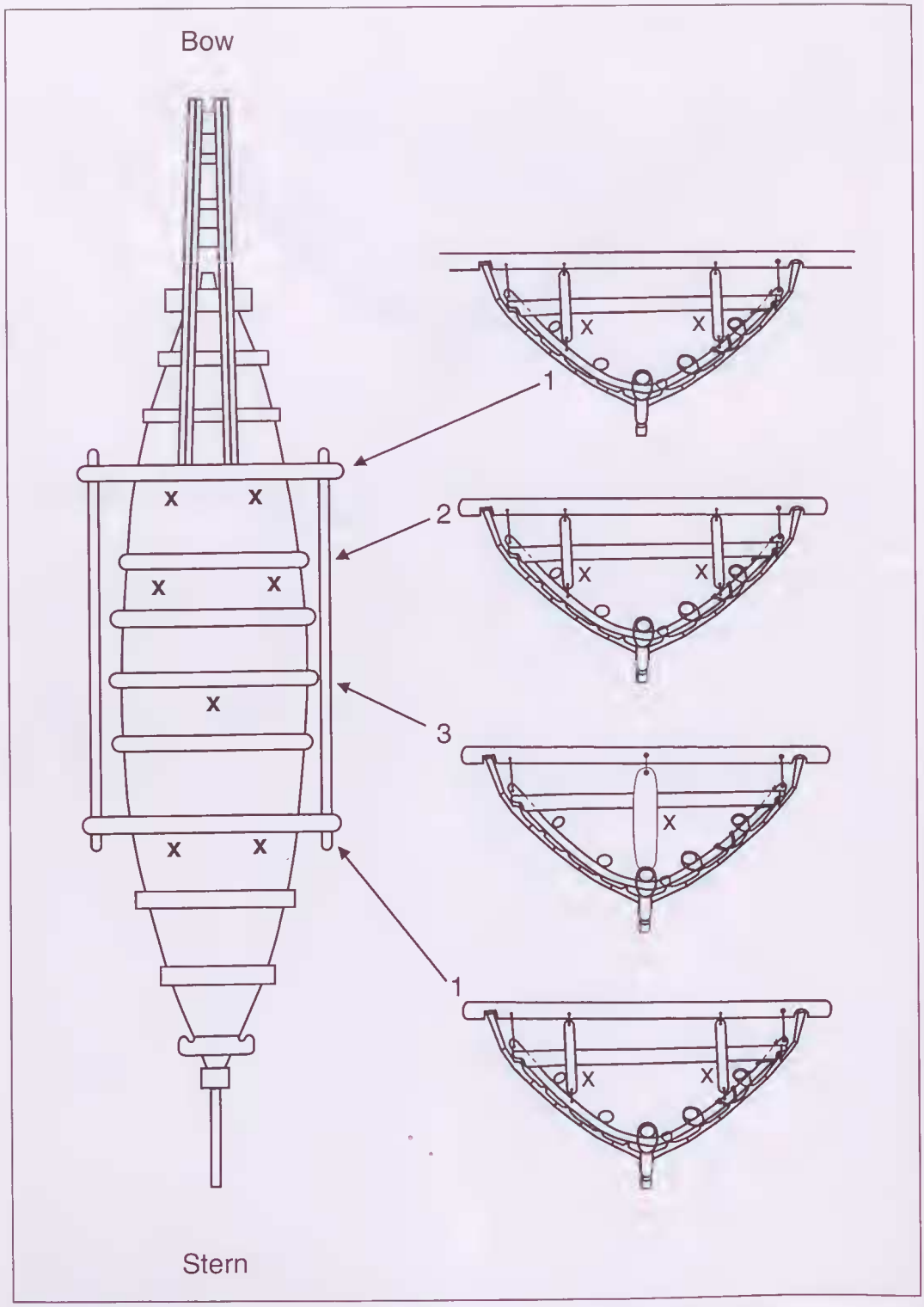


Fig. 6. Plan and stern to bow view sectional drawings of *pelédang* showing the position of the *wilaki* (x=bracing struts).

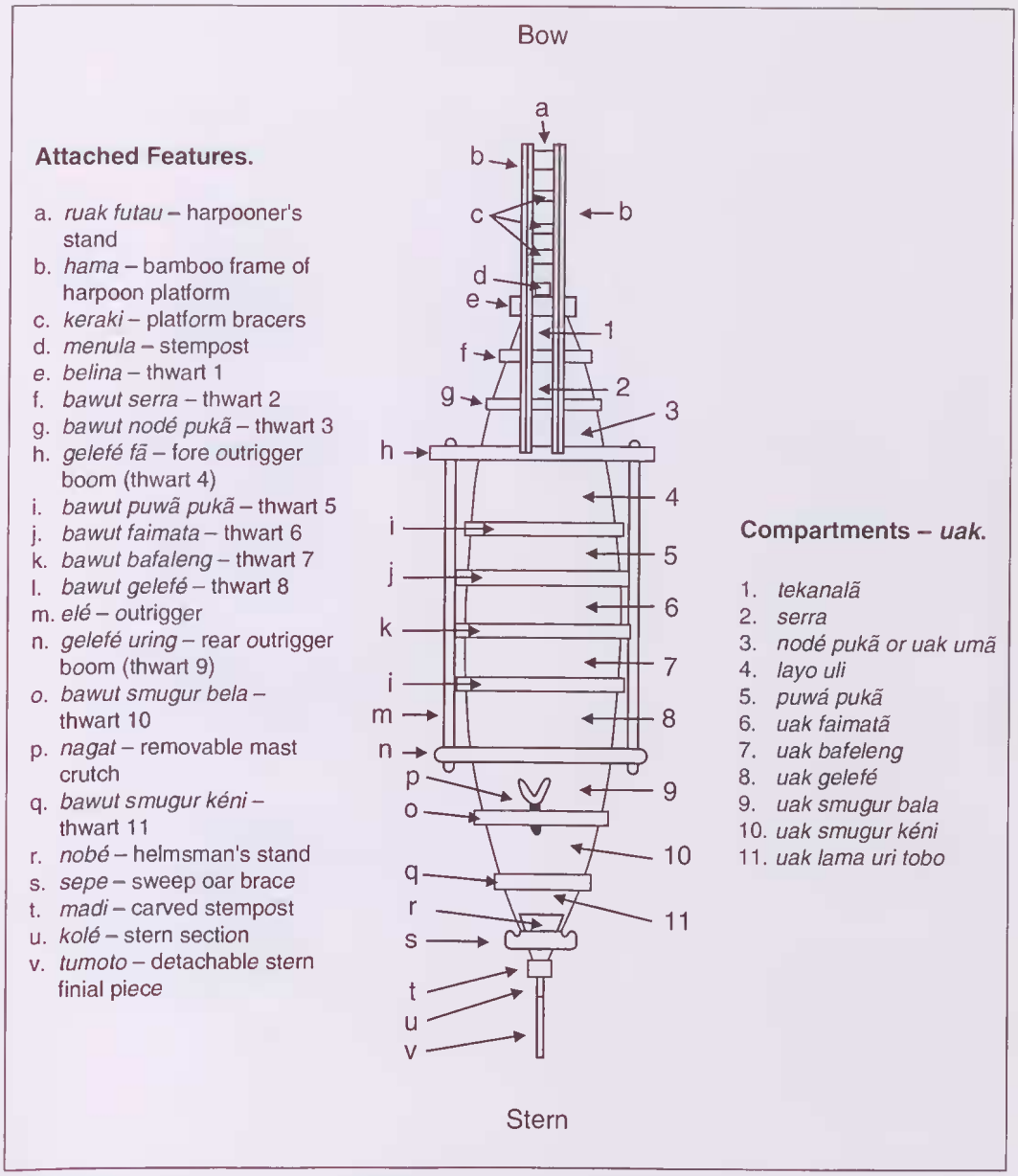


Fig. 7. Plan of *pelédang* showing major structural features, principally the thwarts (*bawut*) and open compartments (*uak*).

this explanation does not necessarily hold true today and Lamalerans suggest that any apparent irregularity in contemporary boat names relates to the designation, either *téna* or *sapang*, of the original craft bearing that name.

The keel is made up of three mortised pieces to which the stem (*menula*) and the stern extention (*kolé*) are joined at either end. Under the keel and attached to it by wooden trunnels is a replaceable three piece false keel (*iye mayi*). Its function is to protect the structural keel during launching and beaching and the daily skidding of the boat up and down the beach, to and from the boat shed, on timber bauks laid at right angles to the path of the boat. The planks making up the six strakes are scarfed with scarfs

staggered so that no two searfs are in alignment, and the sheer strake provides a solid lock for the strakes below it (Fig. 4).

The hull appears to be made up of two distinct shapes–a V-sectioned lower part below a hard chine whieh divides it from the wide top strake (*nefi*). The five lower strakes form the double-ended underwater body (Fig. 3). The lashed-lug hulls of east Indonesia have been described as similar in some structural details and plank pattern to the traditional South Sulawesi hull (Horridge 1981: 78). Barnes (1985: 351–353), however, disputes the importance of some plank similarities and also believes that the names given to the planks indicate that the fifth strake is a reeent addition. The lashed ribs are only attached to the fivc lower planks (Fig. 5). The stem above the fifth strake becomes more vertieal where it meets the plank pieees making up the bow seetion of the *nefi*. The planks of the sheer and the fifth strake at bow and stern are carved to shape and not flexed to meet either stem or sternpost. *Pelédang* possess, in this modc of construction, elements of the design of a seven-part eanoc, even though they arc built on a keel plank with distinct stem and sternpost (Burningham 1992). Virtually all the planking below the sheer strake in the stern terminates on the keel or the keel extension (*kolé*), with only part of the fifth strake and the sheer strake terminating at the stern on the decorated vertieal sternpost (*madi*). The vertical sternpost serves primarily to give attachment to the planking above the ehine. The largest plank in the sheer strake (*nefi*) extends beyond all other scarf joins in the lower planking and terminates about one metre from either end of the craft. Short carved planks, extensions of the main plank, form the sharp topsides in the bow, and run the strake to the stern. The use of eomplex scarfed planks was noted in the Butuan Two boat and, as in the *pelédang*, these indieated a rapid ehange in hull shape towards each end of the vessel (Clark *et al.* 1993: 146–148). Barnes (1985: 351) notes that a softwood seventh strake is occasionally added to the hull when transporting a largc cargo of game home from an extended hunting trip. We do not know how this strake was added other than as a wash-strake, carved to fit on the sheer strake, over the fixed thwarts and lashed to them. We did sec dugout canoes at villages adjacent to Lamalera which had been built up by the addition of lengths of shingled banana leaf matting, so possibly the building up of thc *pelédang* was undertaken in an equally ephemeral manner. Certainly, we saw no evidence that the occasional addition of the seventh strake required any drilling or pegging of the sheer strake, and find it unlikely that the eraft was dismantled to allow the additional strake to be fitted beneath the sheer.

Within the hull, a series of four stout eane stringers (*lada*) are lashed in place on top of the ribs, two on either side of the midline. A fifth is set above the keel linc and either side of the central compartment (*uak fai matã*). This section is left open so that the bailers have unimpeded access to the bilge. The two outer stringers and the eentral one run from the seeond thwart (*bawut serra*) to the seeond last thwart (*nobé*), the latter serving as a stand for the helmsman. The two inner lateral stringers eommenee at the third thwart (*bawut nodé pukã*) and terminate also at the *nobé*. Below the stringers, slats of bamboo or thin flexible wands of brush are set as floating ribs (*téna kanafã*). These are set in each compartment with the exception of the first, the central and the last (Fig. 8). Two floating ribs are set per eompartment if bamboo is used; three, if brushwood sticks. We do not believe these additions have a structural function in the hull, but rather serve to keep harpoon lines out of the bilge and also provide surfaces, other than the planking, on which the erew can move about the eraft. We were also told that game butehered at sea was kept on the stringers and floating ribs in compartment 5 (*uak puwã pukã*).

At thwarts 3 and 7 and lashed to them on the starboard side, two wooden crutches the *nodé fã* and the *nodé uring*, are braced against the gunwhale (Fig. 9). They extend about one metre beyond the gunwale and are positioned to hold the harpoon and punt poles. The furled sail is also placed on them while the mast is being lowered. The forward cruteh has a lesser eruteh (*nodé ipakena*) carved at the distal end. This takes the

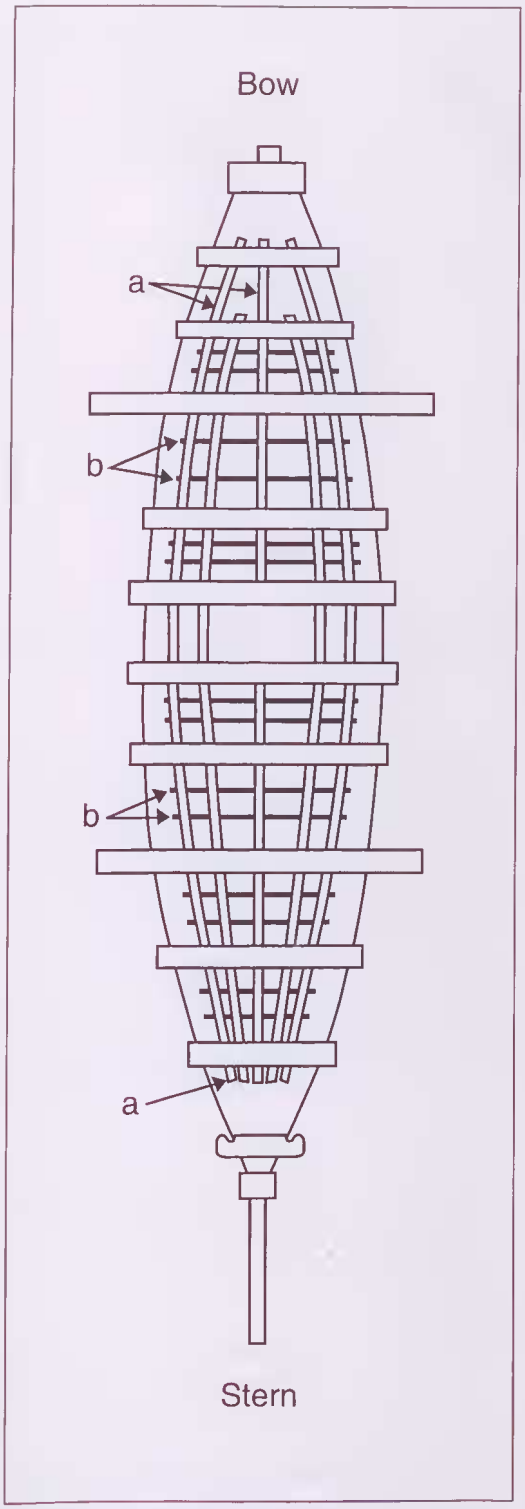


Fig. 8. *Pelédang* showing **a**, stringers (*lada*) and **b**, the floating ribs (*téna kanafe*) lashed beneath them.

proximal section of whichever harpoon is armed and ready for use. A removable crutch called the *nada* is kept in the boat at all times and is employed when the sail is being lowered on the port side. This has a notched foot which engages with the outermost stringer as it rests against the gunwale. The *nada* is also said to be used as a lever with which large game can be pulled toward the boat and dispatched.

RIG AND SAILING CHARACTERISTICS

The *pelédang* has a bipod mast (Fig. 10), consisting of two bamboo poles (*puwã*) joined by a flat, forked wooden masthead (*orã*). Each leg of the fork is fitted into the end of the bamboo poles, which are reinforced with woven rattan frappings. Further structural support is provided by lashing the masthead, through a raised and piereed lug on its rear surface, to a horizontal strut (*eda*) connecting the poles. The masthead is pierced at the apex to take the halyard. Below this aperture it is slightly constricted to take the forestay (*bela fã*) and afterstay (*bela uring*) which are made fast to it.

The lower ends of the bamboo poles are fitted with sturdy wooden stirrups (*puwã layi*), whieh are fitted over ends of thwart 5 (*bawut puwã pukã*) when the mast is to be raised and tied to it with a short ropc called the *kabi*. The backstay remains permanently made fast to both masthead and thwart 7 (*bawut gilefé*), where a strongly curved pieee of timber (*kuuu*) is fixed between rib and thwart to reinforee the latter. Mast raising is aceomplished by some of the crew pulling on the forestay, while others simultaneously push up the mast legs. The fixed backstay ensures that the forward rake of the mast remains constant, with the masthead positioned slightly forward of thwart 2. When in the lowered position the stirrups are slipped from the thwart, the legs are brought together and the mast lies along the midline of the craft with the upper end resting in a removable, forked cradle (*uagat*) that slots into either the rear outrigger boom (*gilefé uring*) or thwart 10 (*bawut snugur bela*).

The sail (*laja*) is rectangular averaging 4 x 8 m (Fig. 11). It is made of a series of square

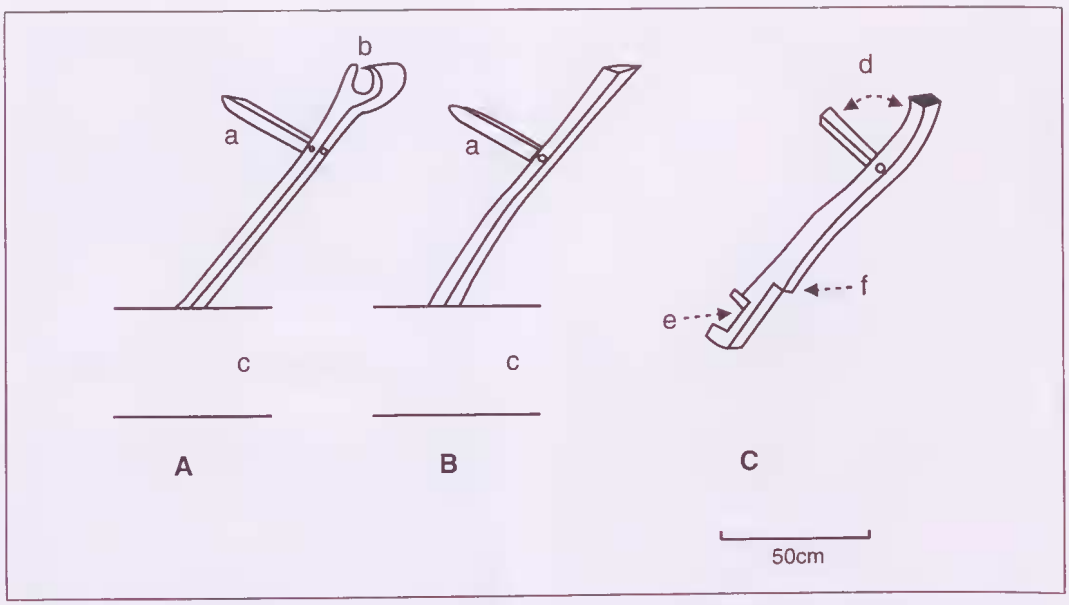


Fig. 9. **A**, forward harpoon pole crutch (*nodé fã*); **B**, aft harpoon pole crutch (*nodé uring*); **C**, removeable pole crutch (*nada*). **a**, fixed pegged arm; **b**, crutch to hold the activc harpoon (*nodé ipakena*); **c**, sheer strake; **d**, pivoting arm; **e**, notch to engage outermost stringer; **f**, notch to engage with thc gunwhale.

panels woven of prepared 10 mm wide ribbons of lontar palm frond (*kebang*) on an open cord mesh (*kelura*). Individual panels (*matã*) average 400 mm a side, and when damaged, can be individually replaccd by re-weaving. The sail could be considered to be composed of strong 'rip-lock' panels that contain any tearing and prevent major damage to the sail as a whole. Weaving of the panels is done with the assistance of a wooden frame (*selaga*) which allows the sail-maker to correctly align the new work in relation to thc adjacent panels. The warp is first cast as a continous piece, spiralling from one end of the frame to the other, then using a 450 mm split-ended netting needle (*nuva*), the weft is woven in. New lengths of frond ribbon were added as required (Fig. 12). On several occasions we noted that the scraps of frond, sections of panel that had been replaced, etc, were carefully rolled up in the sail on completion of a repair, to be cast on the sea like confetti the next time the sail was raised.

The sail is set, on the longer axis, between an (upper) bamboo yard (*kelatá lolo*) and bamboo boom (*kelaté layi*). Sails may be attached to the spars with a series of individual ties of fibre cordage, but most we saw were tied with a single running lacing (*senegat*) of synthctic cord or light rope, tied off at each end of yard or boom. The yard is suspended centrally from a single halyard (*mernami*). Barnes notes that the optimum point of balance on the yard is indicated with a mark (*kelara*), and that the halyard has to be attached at this point in order to achieve the best sailing speed (Barnes 1985: 362). At each end of thc yard is made fast a long brace (*ifé lolo*). The lower spar, the boom (*kelatã layi*), is equipped with an eyed tack strop (*mernuli*) and a sheet (*ifé layi*) at each end.

When not in use the sail is kept rolled up. This is accomplished as it is being lowered, with the use of a 40 cm long wooden, truncheon-like furling pin (*manula*). This is inserted where the lower sheet and the tack strop are attached to the boom and used to rotate the latter, about which the sail is rolled. When not in use the furling pins are stowed in the bows alongside the stem. The sail is raised and unrolled simultaneously by pulling on the halyard, bringing the yard to the masthead. The halyard is then tied off close to the port mast leg so that it lies along it and out of the way. Windward brace and sheet are coiled and placcd on a wooden

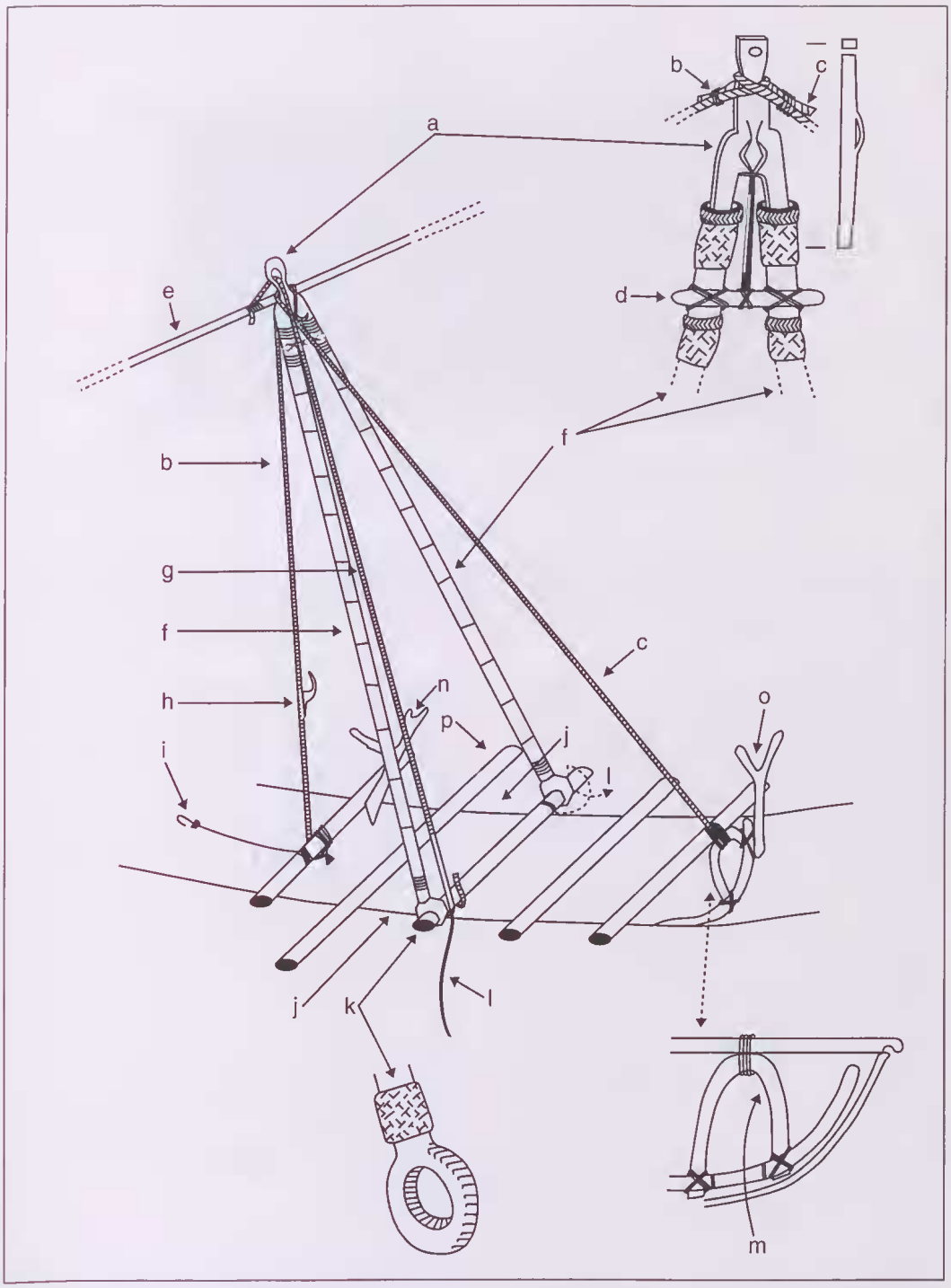


Fig.10. The *pelédang* mast and associated rigging. **a**, mast head (*orā*); **b**, fore stay (*belu fā*); **c**, backstay (*bela uring*); **d** masthead brace (*eda*); **e** yard (*kelatā lolo*); **f**, bamboo mast legs (*puwā*); **g**, halyard (*mernami*); **h**, hook (*ternigi*) for stowing windward brace and sheet; **i**, clew hook (*kinaté*); **j**, (*nubit*); **k**, mast stirrup (*puwā layi*); **l**, stirrup lashing (*kabi*); **m**, back stay tie off point reinforcing strut (*kuni*). **n**, forward harpoon and sail crutch (*nodé fā*); **o**, rear harpoon and sail crutch (*nodé uring*).

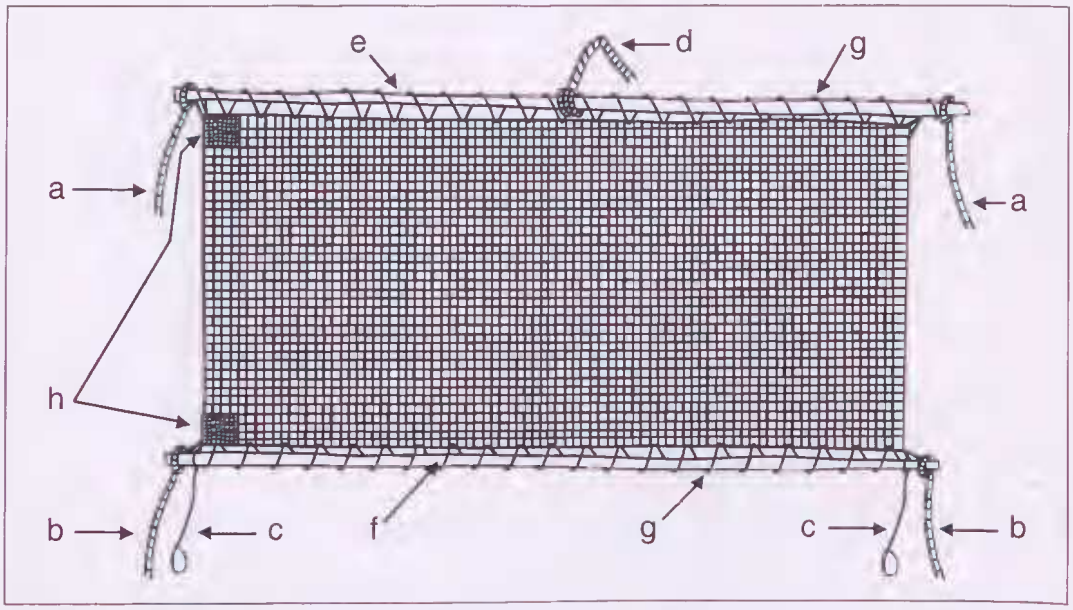


Fig. 11. The sail (*laja*). **a**, yard brace (*efe lolo*); **b**, boom sheets (*efe layi*), **c**, tack strops (*mernuli*); **d**, halyard (*mernami*); **e**, bamboo yard (*kelatã lolo*); **f**, bamboo boom (*kelatã layi*); **g**, continous spiral binding (*senegat*) holding sail to yard and boom. **h**, woven sail panel (*matã*). The sail is made up of approximately 300 of these panels.

hook (*tenigi*) that is lashed to the forestay. The eye of the windward tack strop is then slipped over the end of the windward *nubit*. *Nubit* are backward protruding lengths of stick, lashed beneath the forward thwarts on each side of the hull and which emerge immediately aft of the forward outrigger boom (thwart 4). The leeward brace and sheet are each then taken in hand by a crew member and led aft and, when the sail is satisfactorily set, are tied off on the aft outrigger boom (thwart 9). The sheet is tied off at the leeward side and the brace at the windward side of the thwart. A hook (*kinaté*) attached to a metre long length of cord fastened to thwart 3, can be used to control the tack of the sail when sailing off the wind (Fig. 13).

Like many other sailing rigs used in the Indonesian archipelago, the *pelédang* is not tacked or turned through the wind when changing from one windward tack to another, but rather gybed or turned downwind to effect the change. Other rigs, such as the rectanglar *layar tanja*, described as related to that of the *pelédang* (Horridge 1982: 53), bear only superficial similarities in the way they are operated. Like the lateen rig or *layar leti* of Madura and Bali, when the *layar tanja* is gybed, its spars and sail are moved around the front of the mast but the leading edge and tack remain at the same end of the sail. With the *pelédang*, the sail moves across the front of the mast when gybed and that part of the sail that was previously the leach at the back of the sail now becomes the leading edge. The *layar tanja*, except on small outrigger canoes, is normally carried on a tripod mast with one leg stepped in the bow. We saw *pelédang* running down wind, the sail set with the yard square to the mast. This, along with the change of the leading edge described above, indicates that the sail is technically a true square rig. However, it is normally canted, like the canted rectangular sail or *layar tanja* of the region, which makes the sail more efficient.

The *pelédang* rig has been described as relatively weak and ineffective (Horridge 1982: 53), but we saw no evidence of this when sailing on *Holo Sapang*. With the wind at 10 to 15 knots, the *pelédang* sailed quite smartly, the rig loading the vessel sufficiently to have the lee, forward outrigger boom scooping enough water into

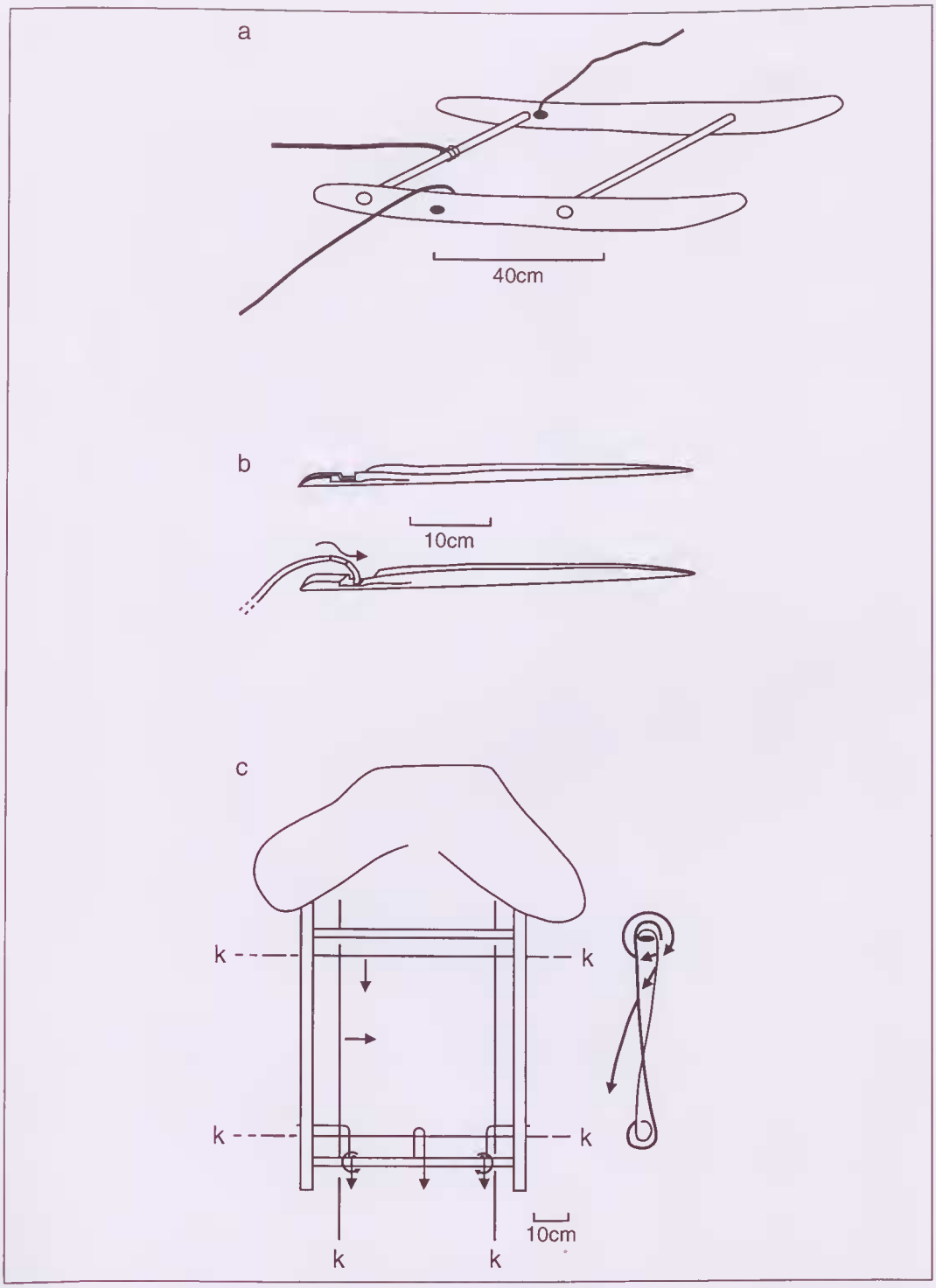


Fig. 12. a, weaving frame (*selega*). The ties are used to key the frame to the cord mesh base (*kelura*) of the sail when repairing a sail square (*matā*). **b**, weaving needles (*nuva*). The lower needle has a strip of prepared lontar palm frond placed in the slit ready for use. **c**, position of the *selega* when in use. The warp is established first and then the weft is woven in with the *nuva*, **i**. indieates the *kelura*.

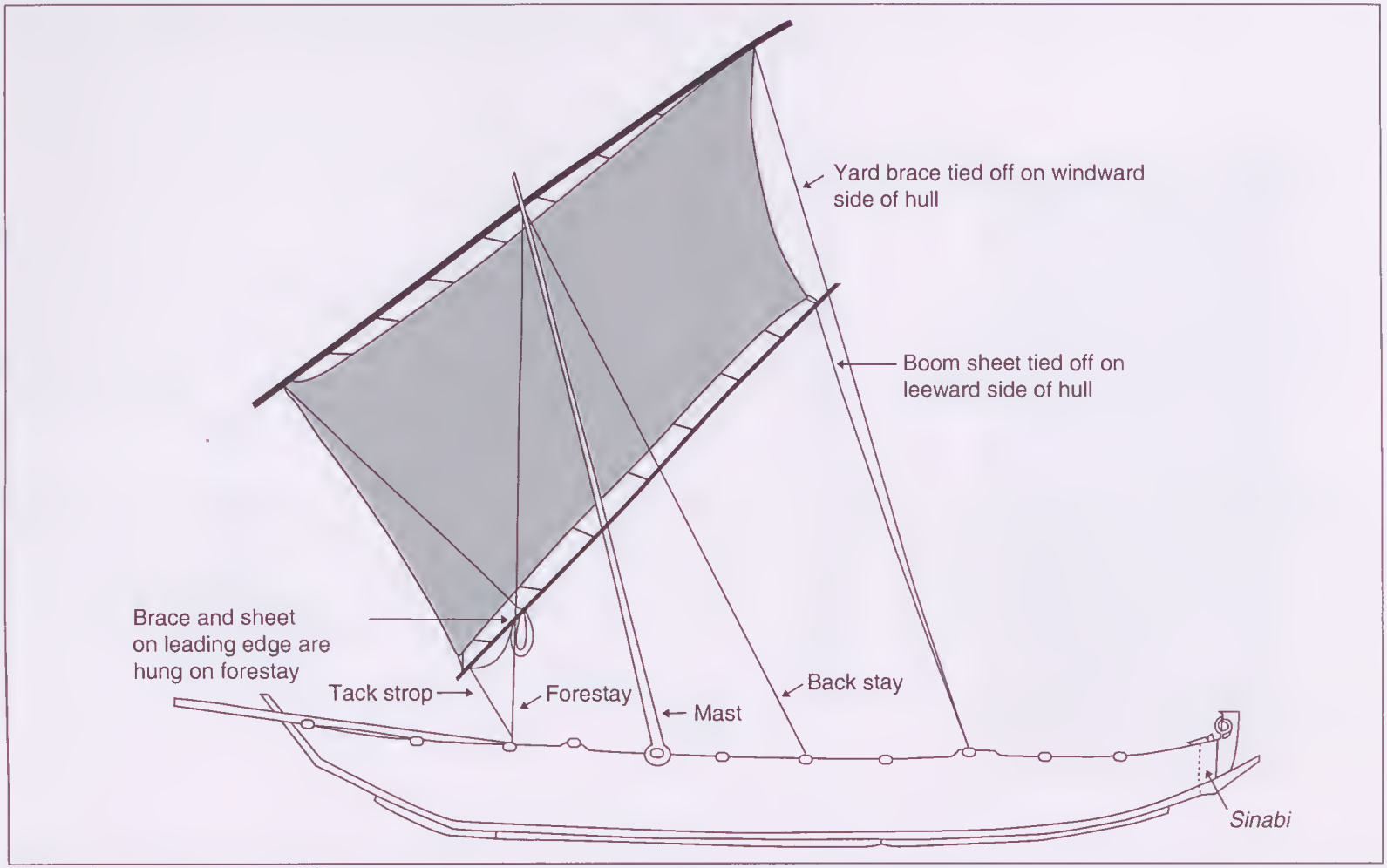


Fig. 13. *Pelédang* under sail, wind from the port beam. Sketch taken from a photograph and imposed on a hull drawn to scale. The crew, as well as structual features such as the outriggers, harpoon crutches and poles etc., have been omitted in the interests of clarity. The position of the rope vice or *sinabi*, is indicated at the stern.

the bilge to require the regular attention of the bailers. The *pelédang*, having shallow draft and a length to beam ratio of around 5:1, would be over-burdened with a larger sail plan. The ability to spill wind from the back of the sail, by easing the lower sheet whilst maintaining the course to the wind, is one of the great advantages of this rig and the *layar tanja*, as it can reduce the heel of the vessel in strong winds. As capsize is a real possibility in the hunt of large prey, such as whales, the ability to quickly lower and stow the sail and mast is a necessary feature of a whale boat. The sail and masts are always lowered prior to closing in on a whale, the final approach being effected by paddles and oars (Barnes 1974: 154).

When the *pelédang* is being launched and beached the crew propel it with paddles (*fai*) and round bladed oars (*befajã*), a pair of which are operated from both the bow and the stern. The ordinary paddles and the steering paddle (*fai uring*) are carved in the solid. The oars, however, consist of a round wooden blade lashed to a long shaft and resemble long handled table tennis bats. Where the shaft engages with the rattan thole bindings, wear marks delineate the extent of the oar loom. The forward oars are placed in loose thole bindings that are supported on forked stick rigs (*katafalé*) that are lashed and pegged between thwarts 2 and 3 on each side of the bow. At the stern, similar structures (*kogu*) serve as fulcrum for the rear oars (Fig. 14). A bamboo punt pole (*tuko téna*) is used when in shallow water to keep the craft off the rocks that stud the beach edge.

Each boat has its own shed into which it is run each evening. The boats are supported under the outrigger with forked timber props (*tenuba laki*) and along the hull with wooden blocks (*tenuba ina*). The boatsheds (*naje*) are placed at the back of the rocky beach that lies between Bawufutung Point to the northeast and Saribiya Point to the southwest. Some crew have, due to the nature of the rocky beach, access to only one area for launching and landing their craft. The state of the tide determines the launching and landing points utilised by other crews (Fig. 15). The beach itself is divided into three named zones. The northern most section, called *Onã* services craft from sheds 1–8; the middle section, named Mobololo Beach after a turtle-shaped rock that lies awash directly off the beach (*mobo* – leatherback turtle), generally serves as the access for craft in sheds 9–18. However, if the tides are not favourable these craft are launched and landed from the third section of the beach called *Engaowã* which is also the access point for boats in the remaining sheds, 19–34.

Normally the crews assemble at their respective boat sheds at about 6 a.m. Sometimes, however, a crew cannot be made up, or the harpooner decides not to go out. In such cases the remaining crew disperse to carry out land-based tasks such as recoiling the harpoon lines, repairing sails or caulking their craft. Operational *pelédang* are always left with harpoon lines and other accessories correctly disposed about the craft, thus ensuring that it will be ready for immediate action if circumstance demands (Fig. 16). Those crews going to sea say prayers, the harpooner removes a neatly woven cover (*pelobos*) that is placed on the stempost (*menula*) whenever the craft lies in the shed and blesses the boat with holy water. Then, usually assisted by other clansmen, they skid the craft across logs or baulks of timber (*lage*) down to the sea. Timing the launch with a running sea the crew push the boat into the water and scramble aboard while others hold it steady. The crew, using the oars, paddles and punt pole clear the rocky shallows as rapidly as possible. Once clear of the beach, and if sufficient breeze is present, the mast is raised and the sail hoisted. If no breeze is present, the crew, chanting to maintain timing and morale, use paddles and oars to move the vessel out to the open sea and pick up the breeze there. The boats leave the beach as a fleet, increasing the distance between each other as they begin to hunt. Lookouts keep watch for any potential prey as well as keeping an eye on the other boats, whose movements may indicate that game has been sighted or is being taken. Generally the sail and mast remain raised when taking small game, both being lowered prior to tackling a whale. The sail and mast are also dropped before beaching.

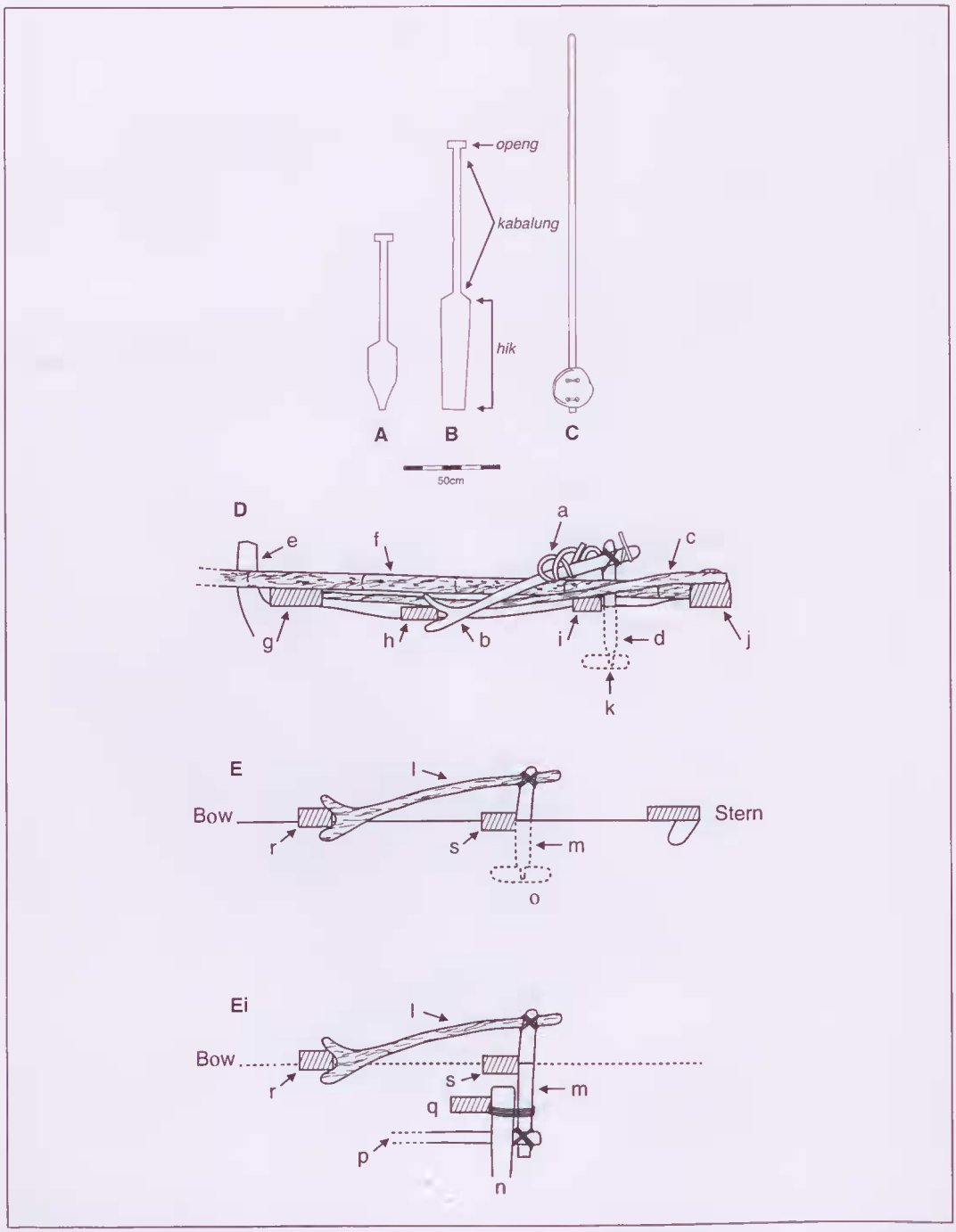
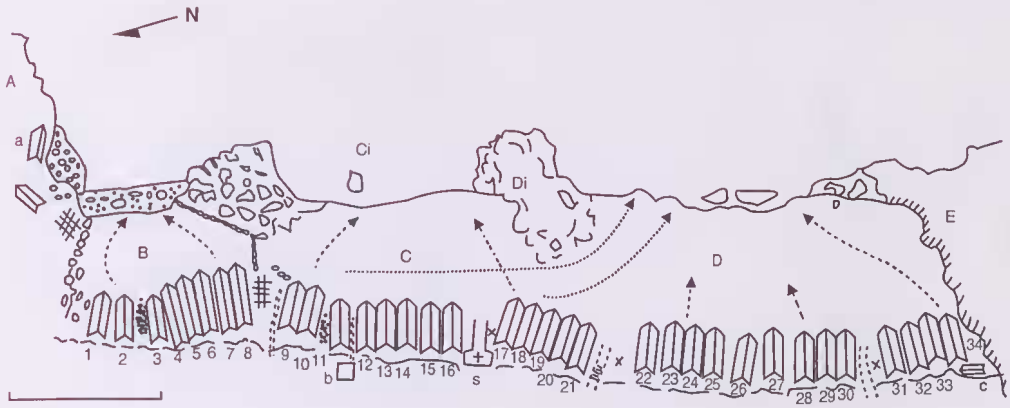


Fig. 14. **A**, paddle (*fai*); **B**, steering paddle (*fai uring*); **C**, oar (*befajã*); **D**, forward port oar station (*katafalé*); **E**, Rear sweep station (*kugu uring*); **Ei**, alternative attachment. **a**, loose rattan oar pivot tied to the *katafalé*; **b**, a forked stick lashed to and supported by the *kugu kamafer*; **c**, a relatively straight tree stem approximately 40 mm in diameter, fixed between thwarts 1 and 4 which serves a guide or runner for the harpoon lines, and the *katafalé nedok* (d), which is pegged into a lug on the 5th strake and also lashed to c; **e**, stempost; **f**, rear section, harpoon platform; **g**, thwart 1, **h**, thwart 2; **i**, thwart 3; **j**, thwart 4 (outrigger boom). **k**, lug; **l**, *kugu*; **m**, *kugu nedok*; **n**, rib; **o**, lug; **p**, stringer; **q**, inner thwart; **r**, thwart 10; **s**, thwart 11.



Topographical features:

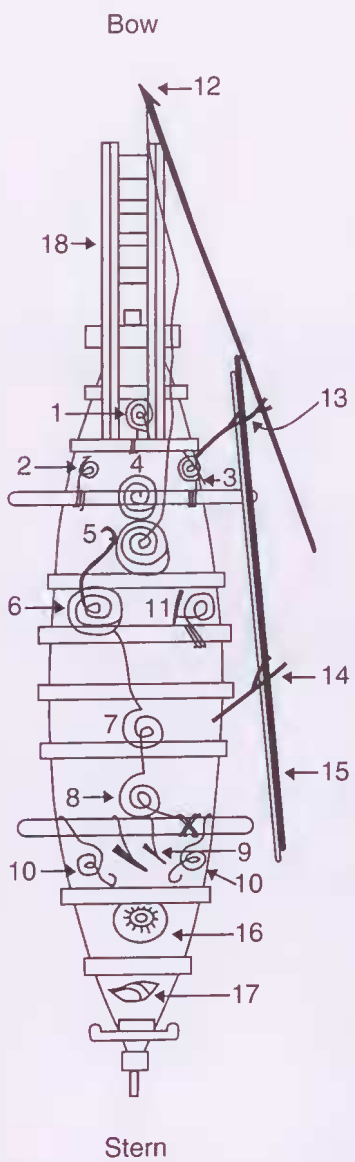
A.	Bawufutung Point
B.	Oná Beach landing for crafts in sheds 1–8
C.	Mobololo Beach. Primary landing for raft in sheds 9–17
Ci.	Mobololo (Turtle Rock).
D.	Engaowá Beach landing for craft from sheds 18–34
Di.	Engaowá Rocks
E.	Sarabiya Cliff and point

Secondary structures

#	drying racks for meat
a.	Losmen
b.	Blacksmith
c.	Timber store
s.	Chapel of St Peter
	Primary launch/beaching route ----------
	Secondary launch/beaching route ·····-·····-·

1–34	**Boatsheds (*naje*) with associated craft, their condition and affiltated clan. (P) = *Pelédang***	
1.	1 sampan, 1 speedboat *Juliana*	Bataona
2.	1 dugout, 1 sampan P. *Jawa téna*	Bataona
3.	1 speedboat *Pises* 1 aluminium dinghy	Bataona
4.	5 sampan and P. *Téna ona* needs rebuilding	Bataona
5.	P. *Keboko puká*	Bataona
6.	1 sampan	
7.	P. *Téna Puka*	Bidiona
8.	P. *Sili téna* needs crew	Bataona
9.	P. *Dolu téna*	Sulaona
10.	P. *Horo téna*	Bataona
11.	Original site for P. *Sogi téna* now moved to x between 21 and 22	Tapaona
12.	P. *Holo sapang*	Batoana
13.	P. *Tetiheri*	Batafor
14.	P. *Kopoparka*	Olayona
15.	P. *Naraténa*	Lamakera
16.	P. *Kelulus*	Bidiona
17.	S. Sampan 1 speedboat *Felmina*. P. *Buipuka* (under repair)	Bilikolola
18.	P. *Sika téna*	Sulaona
19.	P. *Demo sapang*	Bilikolola
20.	1 sampan. Boat timber	
21.	P. *Boli sapang* (under repair)	Hariona
22.	P. *Kapala téna* – no crew	Lafatuka
23.	P. *Muko téna* 10 sampan	Ata Kei
24.	P. *Menula Belolo* 10 sampan	Lamakera
25.	P. *Noto téna* – no crew	Lamanudak
26.	Speedboat *Arno*	
27.	2 sampan 1 bero (built up canoe)	
28.	Speedboat *Filana*	
29.	2 sampan	
30.	P. *Peraso sapang* need rebuilding	Lelaona
31.	P. *Baka téna*	Tufaona
32–34.	10 sampan	

Fig. 15. Sketch map showing the disposition of boat sheds in relation to the beach at Lamalera with details of the craft etc. housed in them.



1. Medium–small harpoon (*talé/kafé suka fá*)
2. Left gaff harpoon (*talé/kafé nodé pukã meki*)
3. Right gaff harpoon (*talé/kafé nodé pukã faná*)
4. Spare cotton rope (*talé léo bela*)
5. A thin cotton rope of extreme ritual significance, that is always kept readied and armed (*talé léo fá*). Length 50 fathoms
6. 9 fathoms of rope joined to (5) with a hitch (*kefokaí*), used to lengthen line if needed (*talé pawã pukã*)
7. 10 fathoms of whale rope (*talé befalang*)
8. 10 fathoms of whale rope tied off on rear outrigger boom (*talé gelefé*)
9. Two whale harpoon leads (*kafé kelema*), hitched to outrigger boom
10. Flying gaff hooks (*kinaté*)
11. Large manta harpoon (*talé/kafé suka béla*)
12. The 'first' harpoon (*leka kenata puã gada*), hitched to (5) and always rigged and ready. Taken down only in the event of a very large game.
13. Forward pole crutch (*nodé fã*), upper notch (*nodé ipakena*) holds armed harpoon
14. Rear harpoon pole crutch (*nodé uring*)
15. Harpoon shafts (*teka*) and punt pole (*tukoténa*)
16. Earthenware water jar (*kuba*)
18. Harpooning platform (*hamalolo*)

Fig. 16. Plan of *pelédang* showing the layout of harpoon lines (*talé*), harpoons (*kafé*), poles (*leka*) and sundry other gear.

Of the twenty-three *pelédang* housed on the beach at Lamalera while we were there, only sixteen were operational. For the rest, three craft were not operating for lack of a crew, two needed repairs and two others needed extensive rebuilding. According to Barnes there were twenty-five boats operating in 1969 and fifteen in the period between 1973-75. In 1979–80, of the twenty-nine boats present, nineteen were operational (Barnes 1980: 38). Fuchs (1984: 26) recorded at least fifteen operational craft in 1984. In 1987 Masyhur (1987: 34) recorded that of twenty–seven boats present at Lamalera, only ten put to sea. Cross-checking Barnes's (1980) lists with our own information allowed us to determine that six craft were no longer extant. These were *Sinu*

Sapang, Léla Sapang, Dato Téna, Geleko Téna, Bokololo and the *Sia Apu*. These craft had been either lost at sea or on sustaining serious damage, had been completely broken down and the timbers stored or discarded. Some sheds held small canoes and one held the hull of the last traditionally built, lash-lugged canoe (*bero*) to be found in the village. Sketches and notes were made of this craft and measurements taken. Four motorised speed boats, used primarily to take smaller game and occasionally to ferry tourists to Lewolaba and Larantuka, were also housed in the sheds.

Between the boat sheds, wood or bamboo racks (*pilaya*) hold sliced whale and ray meat to dry in the sun and the wind. Some racks hold strips of blubber (*forã*) that leak oil (*lalã*) that is collected either in long wooden troughs (*noraj*) suspended beneath the blubber, or funnelled via tin guttering into bamboo containers (*nafi lalã*). Whale oil lamps (*pelita*) were still in use in some residences during our visit. Pressure lamps and electricity (provided by the church, and only available between 6 and 9 p.m.) were other sources of illumination available to the villagers. Large woven fish traps and stocks of boat timbers are also stored adjacent to the sheds or in lofts above the boats.

Timbers derived from damaged or broken up craft may be incorporated when constructing a new *pelédang*. The new craft will bear the name of the boat it replaces in the fleet. The same names can be traced back through time. According to Barnes (1980: 20), two craft bore names that are said to have belonged to boats that brought the ancestors of the Lamalerans to Lomblen.

Whether the hunting economy of the Lamalerans will further decline is a moot point. The ill-fated attempt to introduce modern technology into the village (Barnes 1980, 1984) could easily have had disastrous effects on the village. Fortunately the village and the villagers appear to have survived the experience. While there has been a decline in the numbers of people (and consequently vessels) involved in hunting, we believe that further decline may not occur. The cash input provided by the growing numbers of tourists who visit the region and who often wish to sail with the fleet, may well be an inducement to younger members of the village to stay there rather than seek employment elsewhere.

Perhaps in this way Lamalera will be able to maintain continuity with its past. The *pelédang* will continue to be built and rebuilt and the soul, or spiritual essence, maintained in harmony with both the members of the clan who work in it and the game, especially whales, it hunts.

ACKNOWLEDGMENTS

Our warmest thanks must go to Josephus and Imelda Bataona who were our most gracious hosts while at Lamalera. We must also acknowledge the generous patience shown by Petrus Koli and the crew of the *Holo Sapang* in enduring our tedious curiosity. To our referees Mr Nick Burningham and Professor Campbell Macknight goes our sincere appreciation for their most valuable comments and direction. Finally we thank Nadene Jones for producing such excellent figures from the scrawls extracted from our diaries.

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Accepted 2 March, 1997

APPENDIX - THE DIVISION OF GAME IN LAMALERA.

The following sketches (Figs 17–21) of butchering patterns utilised when dividing major game species were made on the beach at Lamalera. We did not witness the butchering of a sperm whale and the information is derived from discussions with Josephus Bataona. All manta ray we saw were divided into the major cuts at sea, these portions were then further reduced on the beach. We failed to record the recipients of the portions of pilot whale we saw being butchered and all ocean sunfishes were filleted at sea.

The meat is distributed in set ways that differ from species to species. The initial distribution of large game usually involves the following structures or individuals.

1) Corporation – the associated patrilineal descent group that makes up a clan and which owns and is responsible for one or more boats depending on the size of the clan.
2) Corporation or clan ceremonial/meeting house (*lango ikan belifu / lango béla*)
3) Lord of the boat (*téna alap*). Head of the corporation.
4) Lords of the Land (*tana alap*). These are the senior men of the two inland villages from which the original settlers of Lamalera received permission to occupy the area (Barnes 1989: 3, 113–122). Corporations and their boats associated with boat sheds 1–16 (Fig 13) owe allegiance to one *tena alap*, those associated with sheds 17–34 with the other.
5) Harpooner (*lamã fã*)
6) Assistant harpooner (*breun alap*).
7) Crew (*mattros / meng*)
8) Helmsman (*fai uriug*)
9) Ropemaker (*huka talé*).
10) Blacksmith (*ata nuola teka kafé*)
11) Carpenters, boat builders, sailmakers (*ata nuolan*)
12) Boat handlers

The level of distribution becomes more complex as primary recipients then divide their share according to individual patterns of obligations and duties. For further details regarding the distribution of game the reader is directed to Barnes (1980: 27–37).

Meat that is not required for immediate consumption is reduced to thin fillets that are dried on racks in the sun and wind. When dry, the meat is stored for future use. Bones are sectioned and dried and ultimately used to make broth. Few bone implements were seen; swifts (*menuwa*) used to wind homespun cotton were often stood on a whale vertebra base and the drop spindles (*kiduka*) by which cotton was spun were weighted with shark vertebra whorls. Barnes (1989: plate 18) illustrates a weaving sword made from whalebone, possibly a strip taken from the long, straight and dense bone of a sperm whale mandible.

Dried meat is traded each week at local markets in other centres adjacent to Lamalera. Hembree (1980: 40) lists forty Lomblen markets or villages at which whale meat (and presumably other marine products) from Lamalera is exchanged. Meat is exchanged in return for cassava, maize and other vegetables, fruit, cotton and tobacco–crops grown by the hill people of Lomblen. A *pralu*, selling rice from South Sulawesi, arrived at Wulandoni on the Saturday we attended market there. The next day it dropped anchor at Lamalera and attempted to sell rice for cash at Lamalera. Noting that the price of rice had escalated sharply from that quoted at Wulandoni the previous day, no Lamalerans were interested in buying from the traders.

As Barnes (1974: 139) noted 'No other village on the island (and few in the area) is so divorced from agriculture or depends so much on fishing...'. With no arable land it is from the sea they reap their harvest, a harvest that allows them to access terrestrial crops and obtain the other necessities of life.

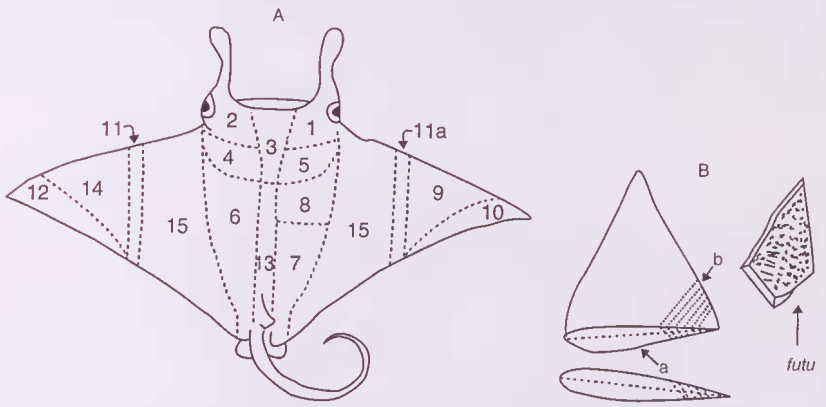

Fig. 17. **A**, division of manta rays (*pari*). Three types of manta ray appear to be recognised. Two of the names may reflect different stages in the growth and maturation of the giant manta ray (*Manta birostris*), or represent another species altogether. The smaller are known as *bou* and the larger are called *bellelang*. The smallest ray taken is the *nuoku* or devil ray (*Mobula ereegoodooenkee*). The schema presented is applicable to the two larger rays. If the manta has been feeding and there is fresh krill (*kujã*) in the stomach it is saved and used as a sambal or food flavouring. **B**, wing being cut into kite-shaped steaks or *futu* (harpoon tip). **1**, *teruk vana* (right) - the upper portion goes to the boat bailers who sit in the central section of the craft. Lower jaw and lower section of gills goes to the person who first sighted the ray. **2**, *teruk meki* (left) – as for portion 1. **3**, *tobanga* – gills and brain to the bailers. **4** and **5**, *kotolong meki* and *kotolong vana* respectively) - divided among the crew. Gills go to the person who sighted the ray. **6** and **7**, *uklolo meki* and *uklolo vana* goes to the corporation. **8**, *layi maké* and **9**, *topu vana* goes to the harpooner. **10**, *mada vana* goes to the harpooner. **11**, *bekat meki* goes to the crew. **11a**, *bekat vana* goes to the harpooner. **12**, *nuada meki* - placed into the boat shed. **13**, *iku* (tail and spine) to the crew. **14**, *topu meki* – this piece is given to a different member of the crew each time a ray is butchered. **15**, the rest of the wing or *laja* is cut into steaks which are divided among the crew.

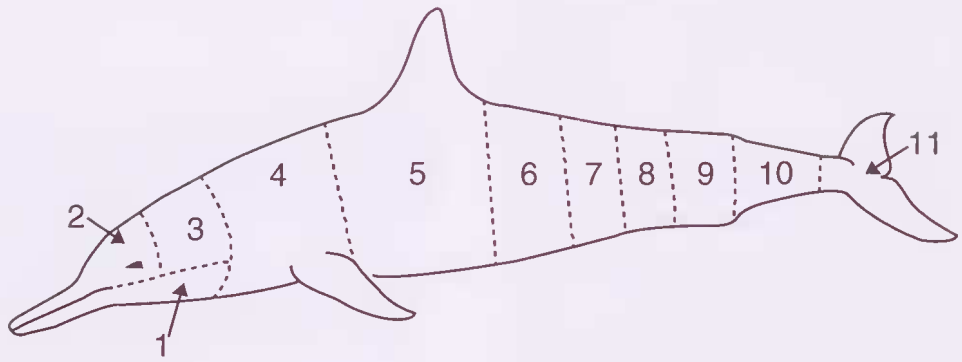

Fig. 18. Division of spinner dolphin (*tenu kira*). **1**, *mima* (the lower jaw) goes to the corporation. **2**, *noivã* (upper jaw and head) goes to the person who first.sighted the animal. **3**, *tutam tikam* goes to the harpooner. **4**, *kelik* is divided longitudinally. One half goes to the harpooner, the other to the ceremonial house. The heart and lungs within the body cavity goes to the blacksmith who forged the harpoons. **5**, *matross* is divided amongst the crew. **6**, *kofokeseba* is divided among members of the corporation owning the craft. **7**, *ata molan* is divided among the craftsmen (boatbuilders, carpenters, sailmakers etc.) who keep the boat in good repair. **8**, *tenarap* goes to the corporation. **9**, *killã* goes to the corporation. **10**, *fadar* is divided among the people who help launch and land the boats. **11**, *iku laja*. Half is divided between the crew, the other half goes to the boat. That is, the crew utilises it to reinforce their own solidarity as a unit. It may be sold for tuak and the crew hold a party.

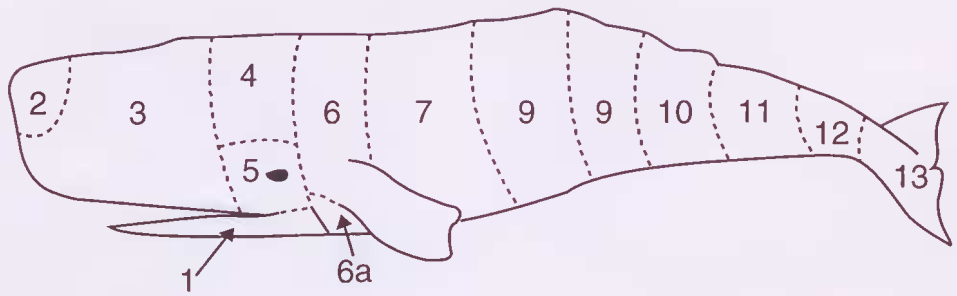

Fig. 19. Division of sperm whales (*kotan kelema*). **1**, *mima* goes to the corporation; the teeth may be sold. **2**, is sent to the lord of the land. **3**, *lefotana* is divided among the crew. **4**, *noivã* goes to the harpooner. **5**, is sent to the lord of the land. **6**, *belada* is longitudinally developed. The left side goes to the corporation ceremonial centre, the harpooner takes the right side. The internal organs contained in this section go to the blacksmith who forged the harpoons and to the harpooner. **7**, *main* is divided between the crew. **8**, *kofokoseba* is divided between the crew. **9**, *lobo kotelo* is divided among the artisans who keep the craft maintained. **10**, *tenarup* goes to the corporation. **11**, *killã* goes to the corporation. **12**, *fadar* is divided among the helpers on the beach. **13**, *iku laja* is divided and the crew share one half. The other half belongs to the boat crew as a unit who may sell it to have a celebration.

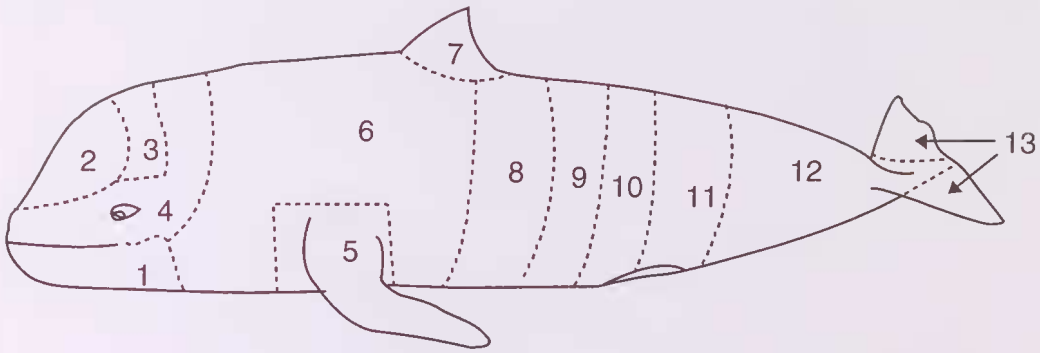

Fig 20. Divisions of a pilot whale (*temu bela*). Recipients not recorded. **1**, *mima* (lower jaw) and *evel* (tongue). **2**, *koreng* (forehead), which is further divided longitudinally. **3**, *noying*, the remaining section of the melon including the blowhole. **4**, *kota kepela* (skull). **5**, *kellik*, in two portions, each about a pectoral fin to the ventral midline. **6**, *tena kanafã* (trunk). **7**, *iting* (dorsal fin). **8**, *pefa keseba*. **9**, *laba ketelo*. **10**, *tenarap*. This section terminates about half way down the genital slit. **11**, *killã*. **12**, *fadar*. **13**, *iku* (tail flukes).

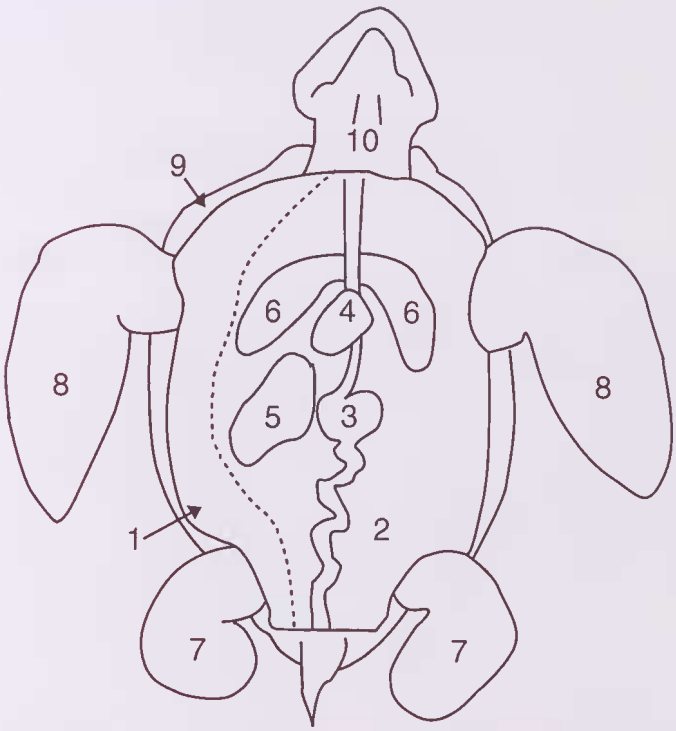

Fig. 21. Division of leatherback turtles (*mobo*). **1**, *nuli* (plastron). Goes to the corporation to assist in meeting costs of maintaining the craft. **2**, *korok* (intestines). Divided among the crew. **3**, *taying* (stomach). Goes to the boat crew as a unit. **4**, *puo* (heart). Goes to the boat crew as a unit. **5**, *ona* (liver). Divided into halves. The crew divide one half between themselves, the other they dispose of for the benefit of the crew as a unit. **6**, *furã* (lungs). The crew divide one lung among themselves, the other they dispose of for the benefit of the crew as a unit. **7**, *kepalik uring* (rear flippers). These go to the corporation. **8**, *kepalik fã* (front flippers). One goes to the harpooner, the other to the corporation. **9**, *gordung* (upper shell or carapace) is disposed of to the benefit of the crew as a unit. **10**, *kotã* or *noi alap* (head) goes to the person who sighted the turtle first.